

CLAIMS

We Claim:

1. A jamming system for jamming an enemy radar associated with a pre-selected target, said jamming system being resident on an air-borne weapon having a radio frequency seeker, and comprising: a guidance computer for controlling the pattern of radio frequency emission of said seeker, said pattern comprising an alternating sequence of emitting and listening, said computer further maintaining said seeker's line-of-sight to said target and said associated enemy radar; a means for detecting the presence of said enemy radar; a means for generating jamming signals; a means for transmitting said jamming signals; and a jammer controller coupled to receive said line-of-sight information and said seeker emission pattern from said computer, said jammer controller being further coupled concurrently to said detecting means, said generating means and said transmitting means, said controller, in response to said detecting means, causing said jamming signals to be transmitted from said transmitting means toward said enemy radar, said controller synchronizing the radiation of said jamming signals with said emission pattern of said seeker so as to achieve disablement of said enemy radar while offering no interference with said emission pattern of said seeker.
2. A jamming system as set forth in claim 1, wherein said detecting means comprises: a first receiving switch, said first receiving switch being coupled to said jammer controller so as to allow said controller selectively to close said first receiving switch to provide a signal path; at least a first receiving antenna and a second receiving antenna; a second receiving switch coupled concurrently between said receiving antennas, said first receiving switch and said controller, said controller selectively connecting said second receiving switch to either said first receiving antenna or said

- second receiving antenna so as to maximize signal reception, in response to said line-of-sight information received from said computer; and an activity detector coupled between said first receiving switch and said jammer controller, said detector determining the presence of said enemy radar from said received signals and inputting said determination to said controller.
3. A jamming system as set forth in claim 2, wherein said means for generating jamming signals comprises: a jammer signal generator for generating jamming signals; a diplexer coupled to receive said jamming signals from said generator, said diplexer separating said jamming signals into in-seeker-band signals and out-of-seeker-band signals; a first transmitting switch coupled to said jammer controller, said first transmitting switch transmitting said in-seeker-band jamming signals from time to time in response to synchronization from said controller such that said in-seeker-band jamming signals are transmitted only when said RF seeker is emitting.
 4. A jamming system as set forth in claim 3, wherein said transmitting means comprises: at least a first transmitting antenna and a second transmitting antenna; a second transmitting switch coupled concurrently between said transmitting antennas, said diplexer and said controller, said controller selectively connecting said second transmitting switch to either said first transmitting antenna or said second transmitting antenna so as to maximize signal transmission to said enemy radar, in response to said line-of-sight information received from said computer.
 5. A jamming system as set forth in claim 4, wherein said diplexer comprises: a band-reject filter and a band-pass filter, said band-pass filter being coupled to said first transmitting switch.
 6. A jamming system as set forth in claim 5, wherein said transmitting means further comprises: an amplifier coupled concurrently between said

- band-reject filter, said first transmitting switch, said second transmitting switch and said jammer controller, said amplifier amplifying said jamming signals prior to transmission thereof.
7. A jamming system as set forth in claim 6, wherein said receiving and transmitting antennas are conformal antennas positioned on the outer surface of said air-borne weapon.
 8. A jamming system as set forth in claim 7, wherein said first receiving and first transmitting antennas form an adjacently-positioned first pair of antennas and said second receiving and second transmitting antennas form an adjacently-positioned second pair of antennas, said first and second pairs being located on opposite sides of said weapon.
 9. A jamming system as set forth in claim 8, wherein said out-of-seeker band jamming signals are continuously transmitted toward said enemy radar.
 10. A jamming system as set forth in claim 9, wherein said first receiving switch and said first transmitting switch are single-pole-single-throw switches.
 11. A jamming system as set forth in claim 10, wherein said second receiving switch and said second transmitting switch are single-pole-double-throw switches.
 12. A jamming system for disabling an enemy radar positioned in a close proximity to a selected target, said jamming system being resident on an air-borne weapon having a radio frequency seeker and a computer for controlling the pattern of radio frequency emission of said seeker and for maintaining said seeker's line-of-sight to said target and said enemy radar, said jamming system comprising: a plurality of receiving antennas for receiving any emission signals from said enemy radar; a means for determining the presence of said enemy radar, said determining means being coupled to said receiving antennas; a source of jamming signals; a

plurality of transmitting antennas, said antennas being positioned relative to each other so as to minimize antenna pattern shadowing; and a jammer controller coupled to receive said line-of-sight information and said seeker emission pattern from said computer, said jammer controller being further coupled concurrently to said determining means, said source and said transmitting antennas, said controller having therein a means for synchronizing the transmission of said jamming signals so as to maximize the disablement of said enemy radar while offering no interference with said emission pattern of said seeker.

13. A jamming system for disabling an enemy radar as set forth in claim 12, wherein said source generates in-seeker-band jamming signals and out-of-seeker-band jamming signals.
14. A jamming system for disabling an enemy radar as set forth in claim 13, wherein said synchronizing means cooperates with said determining means and said computer, said cooperation enabling said synchronizing means to cause said transmitting antennas to transmit said in-seeker-band jamming signals only when said RF seeker is emitting.
15. A jamming system for disabling an enemy radar as set forth in claim 14, wherein said jamming controller selectively activates one of said receiving antennas and one of said transmitting antennas, said selective activation aiming to achieve maximum efficiency in signal reception and transmission and being driven by said line-of-sight information received by said controller from said computer.